Russian Journal of General Chemistry 2016 vol.86 N7, pages 1647-1652

Lability of spin state of Fe(III) complexes with tetradentate Schiff’s bases

Ivanova T., Mingalieva L., Ovchinnikov I., Turanova O., Ivanova G., Gilmutdinov I.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2016, Pleiades Publishing, Ltd.[FeLX2]Y [L = N,N'-ethylenebis(salicylimine) (salen), N,N'-ethylenebis(acetylacetonylimine) (acen), or N,N'-ethylenebis(3-methyloxysalicylimine) (vanen); X = imidazole or N-methylimidazole; Y = BF4, ClO4, or BPh4] compounds have been prepared and studied by means of EPR and magnetic susceptibility measurements at 5–300 K. It has been shown that the different electron-donating properties of acen and salen planar ligands result in different spin states of Fe(III) ions. Intermolecular π-interactions of the outer-sphere BPh4 ion affect the complexes spin state as well.

http://dx.doi.org/10.1134/S1070363216070197

Keywords

EPR spectroscopy, Fe(III) complex, magnetic susceptibility, variable spin properties